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CRYPTIC OR EPIGAMIC??? Cryptic coloration conceals a bird against its background. Epigamic coloration "is used to bring the sexes together in any manner during the breeding season . . . and may assist in threat displays against rivals of the same sex." (Pettingill) It would be difficult to prove a singular function for the facial pattern and bold breast stripes on the Killdeer (front cover). These markings may serve an epigamic function under certain circumstances, but against a rocky background they surely help conceal this bird. (Photo by Bert Blair, Muleshoe National Wildlife Refuge.)

The Lesser Prairie Chickens (inside front cover and page 2) were photographed by John Crawford, a graduate student in Wildlife Management at Texas Tech, who is writing his doctoral dissertation on this species. The blind illustrated on page 3 helps him in his field work. All other photographs in this issue were taken by Dr. Brian Chapman, who this year joined the Biology Faculty at Texas A&I (Corpus Christi).

Dr. Keith Arnold, who contributed the article on the birds of Brazos County, is well-known to TOS members. Stanley Casto, of Wolfforth, Texas, has maintained a research program on the ectoparasites of birds for several years; his two contributions to this issue of the Bulletin are the result of his research in this area.

Ed Kutac's report on the TOS meeting was taken from the TOS Newsletter. Mr. Kutac was elected President of the TOS this year.

James Griffing, who generously provided the useful abstracts on recent articles about Texas birds, resides in Comanche, Texas.

The Bulletin and Newsletter of the Texas Ornithological Society are issued to all members not in arrears for dues. Inquiries regarding membership should be addressed to Mr. Edward A. Kutac, President, Texas Ornithological Society, 5800 Reicher Drive, Austin, Texas 78727. Original articles, reports and other items submitted for inclusion in the TOS Bulletin should be sent to the editor, Dr. Michael K. Rylander, Department of Biology, Texas Tech University, Lubbock, Texas 79409.





The Lesser Prairie Chicken in Texas

by John Crawford

THE Lesser Prairie Chicken (*Tympanuchus pallidicinctus*) was once a common inhabitant of eastern New Mexico, western Oklahoma, southwestern Kansas, southeastern Colorado and a large portion of western Texas. The initial reaction of the Lesser Prairie Chicken to the settlement of this portion of the country was favorable. The patchwork type farming of this time provided an additional source of fall and winter food. The birds responded with an increase in numbers and, possibly, a slight northern extension of their range. However, extensive plowing of the native prairie, overgrazing of the rangelands and drought brought this species to near extinction in the 1930's. Since that time, research and management have helped to preserve the Lesser Prairie Chicken.

Today, this bird still occupies portions of its original range. However, its numbers and distribution within each of the five states mentioned are greatly reduced from pre-settlement times. The Lesser Prairie Chicken has been successfully introduced on the privately owned Island of Niihau in Hawaii. Thus, the current distribution of this species is restricted to relatively small portions of six states.

In Texas, the history of the Lesser Prairie Chicken paralleled that of the species in general. The greatest abundance of these birds in Texas occurred at about the turn of the century (Jackson, A. S. and R. De Arment. 1963. The Lesser Prairie Chicken in the Texas Panhandle. *J. Wildl. Mgmt.* 27:733-737.). A drastic decline followed. By 1937, the hunting season was closed. The population responded to the improved habitat promoted by the more favorable climatic conditions that followed the drought of the 1930's. However, during the drought of the 1950's, the population again declined. Since that time, the population has once again begun to build up. The current Texas population is believed to number between 8,000 and 10,000 birds. In 1967, a two day hunting season with a bag limit of two birds per day was opened in eight Panhandle counties. In 1970, the season was opened up in four counties in West Texas. In those four counties, the population was estimated to be 2,129 birds in the spring of 1970. During the hunting season that fall, 231 birds were harvested. The following spring, the population estimate was 2,304. It is apparent that hunting was only removing surplus individuals from the population. As in most populations, an excess is produced each year to insure survival of breeding stock for the next year. The excess is normally lost to such things as disease, accidents and predation. Controlled hunting, essentially a form of predation, removes only excess individuals without endangering the breeding stock. To insure a proper harvest, the Texas Parks and Wildlife Department monitors spring populations and collects data from the results of the fall harvest.

Lesser Prairie Chickens were once migratory. During the fall and winter large numbers would range down into central Texas and southeastern New Mexico. There is evidence that some birds also migrated eastward to southeastern Kansas and southern Missouri. The migratory habit has since been abandoned. In Texas, Lesser Prairie Chickens reside in about 25 counties (see map). The counties in which hunting is allowed, and by the

same token, probably the best areas to observe and photograph these birds, are the following: Cochran, Collingsworth, Donley, Gray, Hemphill, Hockley, Lipscomb, Ochiltree, Roberts, Terry, Wheeler, and Yoakum.

Lesser Prairie Chickens inhabit sandy, semi-arid country. Grassland interspersed with shinnery oak (*Quercus havardii*) and sand sagebrush (*Artemisia filifolia*) is preferred habitat. These areas provide the proper cover for such essential life activities as breeding, nesting, escape, resting, and roosting. The rangeland also provides a variety of food items for the diet of the lesser prairie chicken. Grasshoppers and beetles are relished whenever they are available. Various seeds and green leafy material are important components of the diet. Wherever grain sorghum fields adjoin their habitat, Lesser Prairie Chickens make heavy use of the waste grain in these fields in the fall. If the stubble is left in the field after the harvest, the birds will use the waste grain throughout the winter and into the spring. Limited amounts of grain sorghum farming appear to aid Lesser Prairie Chicken populations. However, extensive farming drives them out.

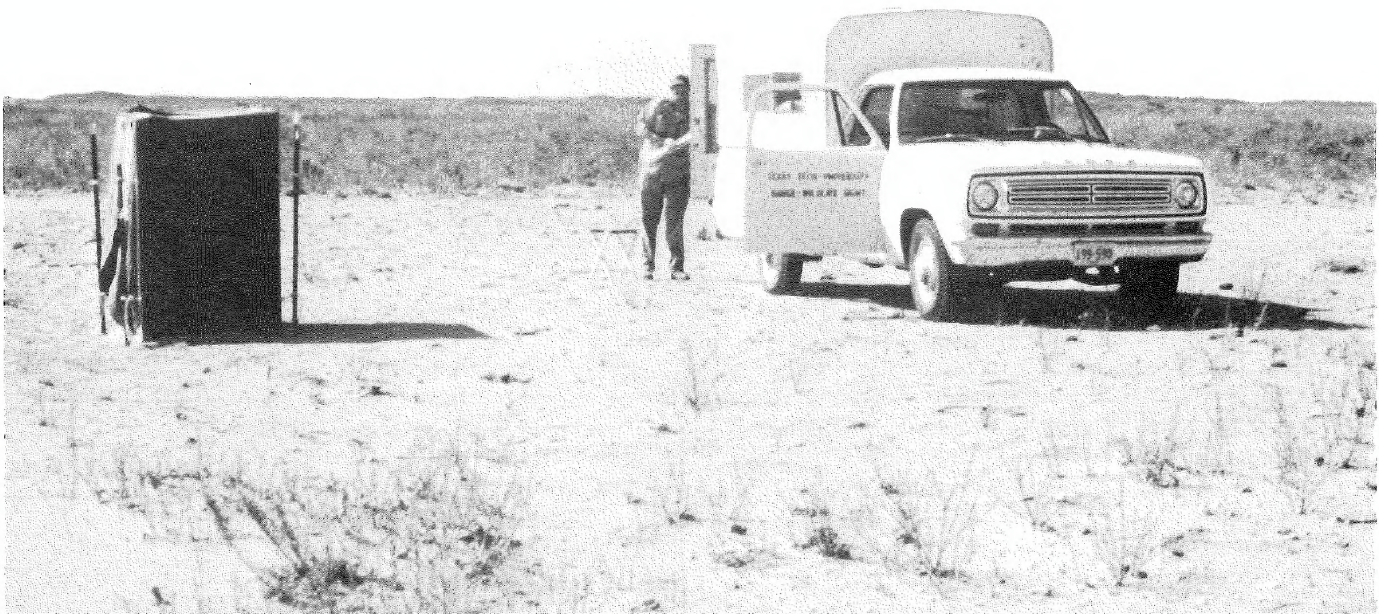
One of the most fascinating characteristics of prairie chickens is their breeding behavior. In March, the males gather on gobbling grounds or leks. The leks are normally located in open areas with low growing vegetation. The gobbling grounds are traditional and the birds will return year after year if the site is not disturbed. The number of males on each lek is dependent upon the population density. Today, a typical lek numbers between 10 and 30 males.

The males establish and defend small territories on the lek. To defend these territories and to attract the attention of the hens, the males utter a vocalization and perform a display. The males take on a horizontal posture with wings lowered and tail cocked. They erect long neck

feathers, called pinnae, and inflate reddish vocal sacs on each side of their neck. Superciliary combs above the eye swell to show a bright yellow color. The gobbling vocalization occurs during this display. The sound can be heard for over a mile on a still morning. The males usually begin gobbling about one-half hour before sunrise and remain on the lek for two to three hours. During the peak of the breeding season, the males return to the lek in the evening about one or two hours before sunset. By late May, most breeding activities have ceased.

The hens visit the lek during late March and April. On each lek, there is a dominant master cock who performs the majority of copulations. In this manner, there is a great deal of selection against those males who are weak or diseased. They simply do not get a chance to breed. Once the hen has been fertilized, she sets about the task of nest building, egg laying and incubation. The nest itself is a rather simple structure composed of a scrape in the ground often with a sparse leafy lining. The hen lays a clutch of about a dozen eggs and incubates them for approximately three and one-half weeks. The males return to the lek again in the fall. However, the intense displaying of the spring is lacking.

Prairie chickens once provided an important source of food for prairie settlers. Today, they provide a pleasurable experience to those early-risers who watch them on their gobbling grounds. Prairie chickens can be photographed and observed from a blind placed on the edge of the lek. An automobile may also be used as a blind. During the breeding season, the birds are not particularly fearful of vehicles near the lek. While the role that prairie chickens play for man has changed over the years, they are still of importance. They provide a variety of enjoyable outdoor experiences and are representatives of our Texas and American heritage.



Prairie Chicken Blind

John Crawford

The Birds of Brazos County: Thirty Years in Retrospect¹

by

Keith A. Arnold

BRAZOS COUNTY is situated in east-central Texas at the confluence of the Brazos and Navasota rivers (Fig. 1). According to Blair (1950, fig. 1), the county is located in the Texas province, an ecotone between the forests of the Austroriparian of east Texas and the grasslands of west Texas. Elevation in the county varies from 190 to 400 feet above sea level. The Gulf Coast lies approximately 100 miles to the southeast; the Balcones Escarpment 100 miles to the west. Three native plant communities are found in this county: tall-grass prairie, 13% (in the northwestern corner); post-oak savannah, 61%; and bottomland hardwoods, 26% (mostly cleared along the Brazos River).

The first report on the birds of the county was that of Davis (1940) in which 145 species were reported, plus a few additional subspecies. Of these, 38 were considered residents, 24 as summer residents (implying breeding) and the remainder as migrants, winter visitors or vagrants. Fitch (1948) added the Inca Dove (*Scardafella inca*) to the county list as a breeding bird. (Although not since recorded as breeding in the county, the number of recent records suggest that it may still breed in the area.) Petrides and Davis (1951) added 15 species to the county list: two residents, one summer resident (?); 11 migrants; and one vagrant. Two of the migrants were considered

to be possibly breeding birds. Furthermore, several changes in status were noted: the Red-tailed hawk (*Buteo jamaicensis*) was removed from resident to winter visitor; the Yellow-crowned Night Heron (*Nyctanassa violacea*) from migrant to summer resident; the Horned Lark (*Eremophila alpestris*) from winter visitor to summer resident; the American Redstart (*Myioborus ruticillus*) from vagrant to migrant; and the Boat-tailed Grackle (*Cassidix mexicanus*) from vagrant to resident. Peterson (1960) cites two additional birds for the county: the Northern Shrike (*Lanius excubitor*) and the Bohemian Waxwing (*Bombycilla garrula*). As no specimens of the Northern Shrike are known for Texas (unless so documented in the forthcoming book of Oberholser, *The Birds of Texas*), this record should best be considered hypothetical. Davis (1961) added the American Woodcock (*Philohela minor*) to the list of breeding birds, but the species has not since been found breeding in the county.

The Brazos Ornithological Society published an annotated checklist (1966) based on the compiled records of several members. This list added 99 species to the county list. Of these, 48 were passerines representing nine families and 51 non-passerines of 20 families. Among the non-passerines there were 36 water birds (shorebirds, ducks, herons and egrets, etc.), 9 birds of prey and six others. Of these birds (as presented in the Checklist), most represent migrants, vagrants and winter visitors (26, 57, and 13 respectively) with seven that cannot properly

¹ Contribution TA10013 of the Texas Agricultural Experiment Station.

be categorized. Six species are properly allocated to the list of residents (Table 1). At the time of publication of this checklist, a number of these species were recorded only once or twice; since then, a number of these vagrants have been found to occur regularly as migrants or summer and winter visitors. Furthermore, the status of many species reported in Davis (1940) is changed in the B.O.S. compilation. Table 2 summarizes the changes that have been made; several species given a definite status by Davis, are included without such a designation in the 1966 listing. Of those species reported as residents by Davis but now of some other status, a number are birds of woodland habitat. On the other hand, a number of waterbirds considered to be migrants in 1940 had become established as winter residents by 1966. Some difficulty in comparison of the two lists arises in that Davis (1940) was concerned with the status at the subspecific level whereby one subspecies might be a permanent resident and another a migrant, winter visitor or summer visitor.

Since the publication of B.O.S. Checklist, an additional 30 species have been added to county list (Table 3). Ten species among this group must be relegated to the hypothetical list until further evidence becomes available. Included in the 30 species are five vagrants, 14 migrants, and six winter residents; the remaining five species are difficult to categorize. Along with these additions, the status of a number of birds has been demonstrated as quite different from that given in the B.O.S. Checklist

Table 1. Additions to the avifauna list for Brazos County in the Brazos Ornithological Society Checklist (1966).

	Migrant	Resident	Winter Visitor	Summer Visitor	Vagrant
<i>Non-Passerines</i>					
Grebes	1		1		
Cormorant					1
Aningas					1
Hérons, Egrets					4
Ibis, Spoonbill					2
Geese, Ducks	1		1		3
Hawks			2		4
Falcons					3
Cranes					
Rails	1		1		1
Plovers	1				1
Sandpipers	4				4
Stilts					
Phalaropes					1
Gulls, Terns	2		1		1
Skimmers					3
Doves					1
Nightjars	1				1
Hummingbirds					1
Woodpeckers		1			1
<i>Passerines</i>					
Flycatchers	1				2
Swallows	2				2
Wrens			1		1
Thrushes	2				3
Vireos	2		1		
Warblers	6		1	1	7
Blackbirds	1				2
Tanagers	1				
Finches			4	1	7
TOTALS	26	1	13	2	57

Table 2. Changes in status between Davis (1940) and the B.O.S. (1966) checklists.

	Davis	R	SV	WV	M	V
B.O.S.	R	—	—	—	—	1
	SV	1	—	—	2	—
	WV	3	—	—	4	2
	M	—	4	1	—	2
	V	—	—	—	—	—
	Undet.	1	—	1	5	—
	WV, SV	1	—	—	9	—

or in earlier publications. These may represent actual changes or the greater activity in this county by more birders. Much of the new information is a direct result of fieldwork by researchers in the Department of Wildlife and Fisheries Sciences, Texas A&M University.

Table 4 lists the hypothetical species for which additional substantiation is necessary; included are the two species mentioned by Peterson (1960) and five from the B.O.S. Checklist.

I find it interesting to speculate on the reasons for the growth of a county (or regional) checklist and on the changes in status for the various types of birds. It is possible to formulate several causes for these changes:

1. *Actual changes in the range of a species.* This is particularly well documented with two species, the Boat-tailed Grackle and the Cattle Egret (*Bubulcus ibis*). The former species probably represents a case of a favorable change in available habitat. The sudden and rapid expansion of the latter species is still an enigma. Climatic changes may also be responsible for range changes; the increased occurrence and now regular nesting of the Western Kingbird (*Tyrannus verticalis*) may be a direct result of the recent trend towards drier conditions in Brazos County.

2. *Human manipulation of environmental conditions.* Habitat conditions in the county and surrounding areas have drastically changed as a result of human activity. The tall-grass prairie and the Brazos River bottomlands are almost depleted. Numerous small impoundments provide available water where none was previously. Road-building has broken woods and grassland into smaller segments; at the same time, this activity has produced nesting sites for such birds as Barn Swallows (*Hirundo rustica*), a species until 1972 considered as a migrant, but found to be an abundant breeder. Of course, continued human activity in agriculture has produced large amounts of food for many species, while at the same time bringing disastrous results for others.

Consequent to human activity are the many changes in distribution and abundance of birds. In Brazos County, the clearing of woodland and the general "cleaning up" that accompanies development of suburbia have without doubt affected such species as the Yellow-shafted Flicker (*Colaptes auratus*), a bird considered resident by Davis (1940) but now only listed as a winter visitor (B.O.S. 1966). Several species, however, have benefitted through human activity; the Starling (*Sturnus vulgaris*) and the Boat-tailed Grackle are now common residents in the county, whereas Davis (*op. cit.*) did not report the former and considered the latter a vagrant.

3. *Increased awareness of birds.* Undoubtedly, the more intense an area is studied and the more persons involved, the greater will be the information gained. This is axiomatic to the study of birds in Texas. One but needs to look at the various areas of Texas where our knowledge is so incomplete and it will be readily evident that the area has few birders (and probably is somewhat isolated). In this particular case, consider that W. B. Davis had been resident in the county but three years prior to his publication. I find the formulation of a list containing 145 species rather remarkable in view of the few persons who could contribute to the compilation. The addition of 105 species over the next 26 years (B.O.S. 1966) and an additional 30 in six more years reflects the tremendous increase of interest in the area and the geometric rise in persons seeking out birds within the county. Furthermore, additional leisure time in combination with increased awareness of the environment has certainly added to the legions that have adopted birding as an avocation.

4. *Increased access to lands.* In the past six years, particularly, birders in Brazos County have had access to

Table 3. Additions to the avifauna list for Brazos County since 1966.

Species	No. Observations	Status ¹
Common Loon	3(2)*	M
White Ibis	3	V
Brant	1	H
Mottled Duck	2(1)	V(SV?)
Goshawk	2	H
Bald Eagle	1	H
Golden Eagle	1(4)	M-WV
Osprey	2(2)	M
Virginia Rail	5	M
Long-billed Curlew	2	M(V?)
Long-billed Dowitcher	1	M(V?)
Dunlin	1	M(V?)
Western Sandpiper	5	M
American Avocet	5(1)	M
Long-eared Owl	1	V(WV?)
Lesser Nighthawk	2	H
Western Wood Pewee	1	H
Black Phoebe	1	H
Least Flycatcher	1	M
Yellow-bellied Flycatcher	1	H(M?)
Common Raven	1	H
Black-capped Chickadee ²	6	H
Winter Wren	3(1)	WV
Short-billed Marsh-Wren	14	M(WV?)
Philadelphia Vireo	7	M
Audubon's Warbler	4	WV
Evening Grosbeak	10	WV
Henslow's Sparrow	6	WV
Zone-tailed Hawk	1	H

¹ Status symbols: M = migrant; V = vagrant; H = hypothetical; SV = summer visitor; WV = winter visitor.

² Kent, 1972.

* Numbers in parentheses are observations in adjacent counties.

Table 4. List of hypothetical species for Brazos County checklist. These need to be substantiated by further observations, photographs or specimens.

Olivaceous Cormorant	Yellow-bellied Flycatcher
Brant	Black-capped Chickadee
Goshawk	Common Raven
Bald Eagle	Western Bluebird
Zone-tailed Hawk	Mountain Bluebird
Marbled Godwit	Bohemian Waxwing
Laughing Gull	Northern Shrike
Lesser Nighthawk	Cassin's Sparrow
Rufous Hummingbird	Oregon Junco
Western Wood Pewee	Clay-colored Sparrow
Says Phoebe	Smith's Longspur
Black Phoebe	

large acreages previously unavailable. One tract in the southern part of the county has yielded about half of the new records since 1966 and has contributed immensely to our knowledge of many other species. Similar experiences have resulted from access to lands along the Navasota River and to large tracts around Bryan-College Station. This access to new areas, particularly those of diverse vegetation, is reflected in the large number of migrant species added to the county list. We have had access to greatly increased acreages of marsh and river bottomlands.

Undoubtedly, continued fieldwork in the county will produce further additions to the checklist; this is to be expected. But other changes of the environment, particularly in the increased urbanization, drainage of marshes and loss of vegetative types have had some effect. At present, most of the remaining bottomland is in the position of potential submergence (and loss) by two proposed reservoirs. If this occurs, most of our woodland species will be lost from the area or reduced to the point whereby most birders will be unable to add these species to the year's list.—Keith A. Arnold, *Texas Co-operative Wildlife Collections, Department of Wildlife and Fisheries Sciences, Texas A&M University, College Station, 77843.*

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CORNMEAL AS FOOD OF THE CACTUS WREN AND GOLDEN-FRONTED WOODPECKER

DURING a visit in December, 1972, to the ranch home of the author's parents near Millett, La Salle County, Texas, Cactus Wrens (*Campylorhynchus brunneicapillum*), and a Golden-fronted Woodpecker (*Centurus aurifrons*) were observed to feed on yellow commercial cornmeal dispensed from a gravity type feeder near the kitchen window. Six Cactus Wrens were resident in the locale and were observed to frequent the feeder during all hours of the day. Both feeding perches were often in use with one or more of the wrens 'waiting their turn'. The voracious appetite of the wrens was evidenced by the need to replenish the quart-size reservoir of the feeder at the end of the sixth day. While feeding, the wrens were oblivious to their surroundings and could easily be approached to within 6-8 feet provided no sudden movements were made. Observation at this close distance confirmed the supposition that the wrens were actually consuming the cornmeal rather than selectively gathering weevils or other insects which might have been attracted to the feeder. Although insects were not obvious, their presence in or near the cornmeal may have provided the initial stimulus through which the wrens were conditioned to return to the feeder and to partake of this material.

The male Golden-fronted Woodpecker, the only one of its species in the area, visited the feeder only when it was not in use by the wrens. Feeding sessions lasted 2-5

minutes and consisted of thrusting the bill deep into the cornmeal with an occasional wiping of the bill on the side of the feeder to remove cornmeal which had stuck to its margins. The bird remained extremely wary during feeding and would fly at the slightest provocation.

Although Cardinals, Mockingbirds, House Sparrows, Curve-billed Thrashers, and Inca Doves were present near the ranch house, none of these species were observed to utilize the feeder.

The use of corn as food by Cactus Wrens was mentioned by Bent (U.S. Natl. Mus., Bull. 195, 1948) who reported that they ". . . enjoy young sweet corn if the husks are stripped down to give them access to the grains." It is further noted that they are only occasional visitors at feeding tables for bread crumbs and generally do not establish a regular habit when plenty of insects are available. With respect to the feeding propensities of the Golden-fronted Woodpecker, the pioneer observations of C. E. Bendire (Bent, U.S. Natl. Mus., Bull. 174, 1939) established that this species utilizes, in addition to various types of insects, ". . . acorns, Indian corn, and different kinds of wild berries and fruit."

In light of the above reports, it is obvious that the use of fresh or hard-kernel corn by Cactus Wrens and Golden-fronted Woodpeckers is a part of their normal feeding inventory. However, the acceptance of corn in a granulated form, dispensed from a feeding container, apparently represents a new dimension of feeding adaptability in these species.—Stanley D. Casto, Dept. of Biology, Texas Tech Univ., Lubbock, Texas 79409.

ALBINISM AND ABERRANT FEATHER COUNTS OF HOUSE SPARROWS ON THE TEXAS SOUTH PLAINS

THE occurrence of albinistic feathers and the reasons for this localized pigmentation deficiency has been the subject of considerable discussion. Michener and Michener (1936) described a partially albinistic female House Sparrow which they observed for a number of years with her presumed offspring (also partially albinistic). They inferred in this case that hereditary factors were involved. Davis (1947) suggested interbreeding and subsequent homozygosity as the cause of albinism in a flock of 15 House Sparrows in which each displayed one or more white feathers. Calhoun (1947) examined more than 1800 museum skins of the House Sparrow and found 5 total albinos, 5 with a white crown, 14 with one white feather (remex or retri) and 14 with "scattered white feathers." Data on North American birds were summarized by Gross (1965) who reported 104 cases of albinism in House Sparrows, including total and partial albinism. In Europe, Piechocki (1954) examined 20,931 House Sparrows from Germany and found no totally white birds and only 10 partial albinos.

Sage (1962) has discussed at length the possible mechanisms by which albinism may be produced in birds. With reference to physical defects it is noted that apparent deafness sometimes occurs in totally albinistic animals, including House Sparrows. Davis (1947) noted that his study flock seemed atypical in that they lacked vigor, did not engage in the normal male to male displays in the spring, and were slow to fly when approached by the observer.

After examining 2,271 House Sparrows, Selander and Johnston (1967) found that 4.62% had one white contour feather whereas 1.89% had a "conspicuous" albinism in which one or more remiges or rectrices, or two or more contour feathers were white. They reported no cases of total albinism nor significant sexual differences, although albinism was twice as frequent in adult as in first-year birds. They concluded that only a small proportion of the cases of albinism are genetically determined and that its geographic variation in frequency is thus of little interest in evolutionary studies.

In the present study, 749 House Sparrows were collected in Lubbock and Hockley counties from January, 1971 to July, 1972 as part of a study of quill mites in this species. On the basis of cranial ossification (Nero, 1951) and plumage characteristics, it was determined that 515

Table 1. Incidence of albinistic feathers in 749 House Sparrows collected on the Texas South Plains

	Bird Data		Feather Data							
	Number Examined	Number With Albino Feathers	Primaries		Secondaries		Rectrices		Primary Coverts	
			Total Number	Number Albino	Total Number	Number Albino	Total Number	Number Albino	Total Number	Number Albino
Adults	515	15	10,300	9	9,270	5	6,180	8	10,300	1
Juveniles	234	1	4,680	1	4,212	1	2,808	—	4,680	—
Totals	749	16	14,680	10	13,482	6	8,988	8	14,980	1
Total Feathers Examined = 52,430			Albino Primaries = 0.068 %				Albino Rectrices = 0.089 %			
Total Albino Feathers = 25			Albino Secondaries = 0.044 %				Albino Primary Coverts = 0.0067 %			
Partially Albinistic Birds = 2.14 %										

were adults and 234 were juveniles, ranging in age from nestlings to first-year birds in adult plumage. Prior to sacrifice, 20 birds were maintained in laboratory cages for observations of the fall molt.

Albino feathers. Fifteen adults and one juvenile bird in its first adult plumage had a total of 25 albino feathers. Rectrices were most frequently albinistic (0.089%), followed by primaries (0.068%), secondaries (0.044%) and the primary coverts (0.0067%) (Table 1). Eight birds had only one albino feather, whereas 5 had 2 albino feathers and 2 had 3 albino feathers. Where two or more albinistic feathers were found on the same bird, they occurred randomly and with no apparent symmetry. In one of the birds retained in the laboratory, two normally pigmented feathers were observed to be molted and replaced by albinistic feathers, apparently normal in all respects except coloration.

Aberrant feather counts. Four birds had feather counts deviating from the normal rectrix count of 12. One individual had 14 rectrices symmetrically distributed whereas two birds showed a supernumerary count of 13 rectrices, 7 on one side and 6 on the other. One bird had less than the normal number of rectrices (10 symmetrically distributed feathers). This bird was not in molt and there was no evidence of a follicle where R6 would normally be found.

The results of this study bear out the conclusions of previous reports that partial albinism is fairly common in House Sparrows. The greater incidence in adult birds supports the contention of Selander and Johnston (1967) that only a small proportion of albinism in House Sparrows

is genetically determined. Evidence that albinism results from an environmentally-induced somatic mutation is offered by the example of the caged bird which molted normal feathers and replaced them with albinistic ones. In this case it would be interesting to know if at the next molt these albino feathers would be replaced by a second generation of albinos or whether the mutation could be reversed and a normally pigmented feather produced in the same follicle.

Since wing and tail feathers are found in a series and are molted and replaced in a definite sequence, it is possible to ask if there is a greater probability for certain feathers in a series to be albinistic; or if the occurrence of albinistic feathers is totally random. The cumulative distribution of albinistic feathers (Table 2) obtained in this study suggests that, except in the case of the primaries, there is about an equal chance of a low-numbered feather in a series being albino as there is for a high-numbered feather (e.g. R1 and R6). A study of a large sample with an analysis of individual feathers within a series would indeed provide interesting data on this aspect of partial albinism.

This study was supported in part by a grant to Dr. R. W. Strandtmann and Stanley D. Casto from the Graduate School of Texas Tech University.—Stanley D. Casto, *Department of Biology, Texas Tech University, Lubbock, Texas 79409.*

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Table 2. Cumulative distribution of albinistic feathers in 16 House Sparrows

Feather Tract	Feather Number										Totals
	1	2	3	4	5	6	7	8	9	10	
Primaries	2	—	2	2	2	1	1	—	—	—	10
Primary Coverts	1	—	—	—	—	—	—	—	—	—	1
Secondaries	1	1	1	—	1	1	1	—	—	A*	6
Rectrices	2	—	—	2	2	2	A	A	A	A	8
Totals	6	1	3	4	5	4	2	—	—	—	25

* Indicates that there is no feather in that series corresponding to the number indicated.

BOOK REVIEWS

LAS AVES DE CHIAPAS by Miguel Alvarez del Toro. Published by the Governor of the State of Chiapas, Mexico, Tuxtla Gutierrez, Chiapas, Mexico. 1971. 270 pp., 82 colored plates.—There is always some debate over the justification of state bird books because field guides are usually better for identification purposes and checklists are handier for status and distribution. Yet even ornithologists who are unenthusiastic about state bird books will recognize the importance of *Las Aves de Chiapas*; for besides being virtually the first book of its kind from Mexico, it ranks as an impressive achievement in a heroic struggle by a small group of Mexican conservationists who are concerned with some severe environmental threats to their country. The author and the Governor of the State will be regarded by historians as outstanding conservationists who played a crucial role in the history of Chiapas. *Las Aves de Chiapas* will play an important part in Mexican conservation because by teaching the Chiapan citizen about the identification, behavior and ecology of the regional birds, it will be responsible for the popular support necessary to implement conservation efforts in the future.

The field marks and distribution are described—in clear and simple Spanish—for each species. The scientific, English and Spanish names are given, though the English names are not indexed. For the most part, the descriptions are adequate, but sometimes lack important field marks (e.g. the two yellow-legs are separated only by size). Some of the illustrations are very well done, though the plates are not all of the same quality. The color plates are not cross-referenced to the text, which means that the reader who wishes to know the name of a bird he has located on the plates must search the nearby text for an entry containing reference to his plate. Since this book will become the authoritative work on Chiapan birds, it is unfortunate that there are a large number of typographical errors and misspelled words and names. The bibliography (arranged alphabetically by first name of each author!) is not as comprehensive as some would prefer, but this appears to be a minor point.

The importance of the book far outweighs its shortcomings! A most original and valuable section for each species are the "Notas" which contain much information published for the first time anywhere. In this section one learns about the place of birds in the Chiapan ecosystem; about distressing population declines in certain species (e.g. macaws); and about the delicate relationship between birds and the changing habitats of Chiapas. The author reports interesting facts such as sickness in people attributed to the ingestion of parrots that eat poisonous berries; and the practice of capturing Cedar Waxwings and selling them as cage birds after making them docile by filling their crops with gunshot. Naturally such birds die soon after they are purchased.

The notes about characteristic native birds—such as sungebes—are particularly extensive and reflect the author's firsthand experience in the field.

It is hoped that this impressive book will set a precedence for comparable books on birds of other states in Mexico; and that it will be successful in bringing the plight of Chiapas' endangered species to the attention of its citizens.—M.K.R.

WE LIKE IT WILD by Bradford Angier. Collier Books, A Division of the Macmillan Co. New York, 1973. 212 pp. \$1.50 (paper).—Bradford Angier recounts the transition that he and his wife experienced during a relocation from urban Boston to the rustic Canadian Rockies. This is not a guide to outdoor living—rather a narrative relating the positive dimensions of a simplistic life style, gained during a 14 month stay in unrefined nature. The beauty of the Canadian highlands is vividly described.—Ted Levin

WATER: THE WEB OF LIFE by Cynthia A. Hunt and Robert M. Garrels. W. W. Norton & Co., New York. 1972. 208 pp. \$2.25 (paper).—A non-technical account of the role of water in an ecosystem upon which man is making incredible demands; and an argument for "the necessity of complete management of water by concerted national and international effort."

BIRDS OF BIG BEND NATIONAL PARK AND VICINITY by Roland H. Wauer. Paintings by Howard Rollin and Anne Pulich. Austin: The University of Texas Press. 1973. 223 pp. 24 color plates. \$4.95 (paper).—When "Ro" Wauer took over the position of Chief Park Naturalist at Big Bend National Park in 1966 he immediately began organizing the existing data on the birds of the area with the intention of adding to them extensively with his own observations and eventually publishing a monograph on the birds of the Park. During the next five years he revised the Park checklist twice, and now, under the auspices of the Big Bend Natural History Association, he has published the monograph, *Birds of Big Bend National Park and Vicinity*, an attractive book of impressive scientific merit which reflects the thousands of careful observations Wauer made of the birds of the Park during his six year tenure.

The 385 species of birds recorded in the Park are discussed in detail with regard to their behavior and ecology in the Park. One need read only a few pages to realize the author's vast firsthand knowledge of these birds. These ecological notes in my opinion are his main contribution to the ornithology of the region, and the groundwork for a comprehensive ecology of the birds of the area has thus been firmly established. Future ornithologists can now quite easily spot the gaps in our knowledge of the area and direct their ornithological efforts accordingly.

The photographs of representative habitats in the Park are very well selected. The color plates illustrating 59 species (grouped by habitat) are very attractive, although one wonders if the inclusion of color plates is necessary. (For a dollar less than Wauer's book one may purchase the well-known field guide that illustrates *all* North American birds in color!) Yet clearly this book should be directed to the general public as well as to the serious birder, and perhaps the inclusion of color illustrations will encourage non-birding visitors to notice the birds of the area.

I think that numerous birders who have an interest in plants would have appreciated the inclusion of the scientific (botanical) names of the plants Wauer refers to in his ecological descriptions, since common names vary from book to book. Readers using Correll and Johnston's technical *Manual of Vascular Plants of Texas* can look up, for instance, the "Cowpen Daisy" that Wauer mentions; but anyone who follows Rickett's popular, illustrated *Wildflowers of the United States (Texas)* cannot find the Cowpen Daisy by that name in their book, for there it is called the "Butter-Daisy." (The scientific names of birds are, however, included, once in the text and again, for no obvious reason, in the plate legends.)

These are minor points, of course, as well as are the five or six errors and inconsistencies in the bibliography, such as the misspelling of the *Bulletin of the Texas Ornithological Society* (no doubt unsettling only to the editor of that Bulletin). The important point is that in this book Wauer has expertly edited and synthesized an enormous amount of data (his own and others), and has thereby made a significant and lasting contribution to the ornithology of Texas.—M.K.R.



Black-necked Stilts

Brian Chapman

RECENT ARTICLES ABOUT TEXAS BIRDS

Arnold, K. A. and D. W. Coon. 1972. *Modifications of the cannon net for use with Cowbird studies*. J. Wildl. Mgmt. 36: 153-155. Rocket net mounted on hood and bumper of vehicle.

Boeker, Erwin L. and Eric G. Bolen. 1972. *Winter Golden Eagle populations in the southwest*. J. Wildl. Mgmt. 36:477-484. Aerial censuses from 1964 through 1968 over eastern New Mexico and Trans-Pecos, Del Rio, and San Saba areas of Texas. In Texas, eagles found consistently in Trans-Pecos only. Density ranged from 0.4 to 3.5 eagles per 100 square miles.

Flickinger, Edward L. and Kirke A. King. 1972. *Some effects of aldrin-treated rice on Gulf Coast wildlife*. J. Wildl. Mgmt. 36: 706-727. From authors' abstract: "Dead waterfowl, shorebirds, and passerines were collected on study areas in Wharton, Brazoria, and Chambers counties, Texas, from 1967 through 1971. Residues of aldrin or dieldrin were found in all samples of bird casualties and in all eggs, scavengers, predators, fish, frogs, invertebrates, and soils. . . . This study adds further evidence for the suspected lethal effects of aldrin-treated rice seed on wild birds and other wildlife in rice field habitats."

Soutiere, Edward C., Horace S. Myrick, and Eric G. Bolen. 1972. *Chronology and behavior of American Widgeon wintering in Texas*. J. Wildl. Mgmt. 36:752-758. Observations were made at Muleshoe and Buffalo Lake National Wildlife Refuges. Birds begin arriving in September, after Pintails and teal; population peak is during Christmas week. Pairing begins in November; 80 percent are paired in early March. Departure starts in February and last birds left in late April. Birds that arrived earliest also departed earliest.

Ohlendorf, Harry M. and Veryl Board. 1972. *Nesting records for two species of birds in trans-Pecos Texas*. Southwest. Nat. 17:99-100. In 1969, Mississippi Kite in Reeves County and Green-tailed Towhee in Culberson County.

Burnham, Gladys L. 1972. *Some helminth parasites of the Sandhill Crane in West Texas*. Southwest. Nat. 17:200-201.

Wauer, Roland H. and James F. Scudday. 1972. *Occurrence and status of certain Charadriiformes in the Texas big bend country*. Southwest. Nat. 17:210-211. For details see article. Semipalmated Plover, Snowy Plover, Mountain Plover, Common Snipe, Whimbrel, Upland Plover, Spotted Sandpiper, Stilt Sandpiper, and Northern Phalarope.

Easterla, David A. and Roland H. Wauer. 1972. *Bronzed Cowbird in West Texas and two bill abnormalities*. Southwest. Nat. 17:293-295. Bronzed Cowbirds seen in Brewster County and Davis Mountains. Bill abnormalities of Bronzed Cowbird and Pyrrhuloxia—see photographs.

Feduccia, Alan. 1972. *The Pleistocene avifauna of Klein Cave, Kerr County, Texas*. Southwest. Nat. 17:295-296. Remains from about 8000 years before present consisted of Turkey, Screech Owl, Burrowing Owl, Bobwhite, Teal, Prairie Chicken, Greater Yellowlegs, Mourning Dove, Cave Swallow and small fringillids.

Littlefield, Carroll D. 1973. *Swainson's Hawks preying on fall armyworms*. Southwest. Nat. 17:433. Observed in October 1969 in Parmer County. Later, while hawks feeding in the field, it was sprayed with parathion. "None of the hawks showed any symptoms of poisoning although it is possible some mortality occurred following their southward departure."

Bell, Michael W. and Donald A. Klebenow. 1973. *Hurricane impact on Bobwhite cover*. Southwest. Nat. 17:433-435. Effects studied on Welder Wildlife Refuge and Patrick H. Welder Ranch in San Patricio County. Damage resembled half-cutting treatment recommended by Texas Parks and Wildlife Department. "There was a tendency [by escaping pairs] to use the large

dead broken mesquite more than other damaged brush. Calling cocks selected large damaged mesquite for calling perches" (p. 435).

Dawson, William R., Jack W. Hudson, and Richard W. Hill. 1972. *Temperature regulation in newly hatched laughing gulls (Larus atricilla)*. Condor 74:177-184. Chicks obtained from West Bay, Galveston County. Birds "had moderately effective temperature control" with declining temperatures and "were quite effective in their thermoregulation at high ambient temperatures" (authors' summary).

Davis, Walter R., II and Keith A. Arnold. 1972. *Food habits of the Great-tailed Grackle in Brazos County, Texas*. Condor 74:439-446. Overall, 80% of diet is animal matter and remainder, plant seeds. Nestlings were fed 99% animal matter. Grasshoppers, crickets, etc. comprised about one-half total diet.

Hubbard, John P. 1972. *King Rail and Flammulated Owl at El Paso, Texas*. Condor 74:481. Collected in 1933 by unknown collector; passed through different museums and now in Delaware Museum of Natural History.

Wauer, Roland H. and Donald G. Davis. 1972. *Cave Swallows in Big Bend National Park, Texas*. Condor 74:482. Nests, eggs, and young found; first record for Brewster County.

Flieg, G. Michael and Robert E. Dooley. 1972. *Spasmodic tic, a behavioral trait of the Cracidae*. Condor 74:484. Curassows at Houston Zoo and elsewhere "exhibited a nervous twitching of the head."

Easterla, David A. 1972. *Specimens of Black-throated Blue Warbler and Yellow-green Vireo from West Texas*. Condor 74: 489. Big Bend National Park, Brewster County.

Stephenson, James D. and Glen Smart. 1972. *Egg measurements for three endangered species*. Auk 89:191-192. Includes nine Whooping Crane eggs from the San Antonio Zoo.

Kok, O. B. 1972. *Breeding success and territorial behavior of male Boat-tailed Grackles*. Auk 89:528-540. In Austin area, birds were captured, individually marked, released, and observed. None of the various behavioral characteristics was closely correlated to ultimate breeding success of males.

Allaire, Pierre N. 1972. *Field Sparrow uses abandoned nest for August brood*. Auk 89:886. "Open pine stand in eastern Texas. . ."

Rylander, Michael Kent. 1972. *Winter dormitory of the Roadrunner, Geococcyx californicus, in west Texas*. Auk 89:896. An assumed House Sparrow nest was occupied by Roadrunner for two months during winter. Sparrows occupied it afterwards.

Rohwer, Sievert A. 1972. *A multivariate assessment of interbreeding between the meadowlarks, Sturnella*. Systematic Zoology 21:313-338. Includes birds from west Texas. Comparisons involved allopatric and sympatric birds. With some exceptions, sympatric birds could be separated morphologically. The exceptions indicated some interbreeding. "Song was thought to play an important role in selection of conspecific mates" (author's abstract).

Emlen, John T. 1972. *Size and structure of a wintering avian community in southern Texas*. Ecology 53:317-329. Study done in Welder Wildlife Refuge and considered absolute densities and habitat overlap of 50 species of land birds. "The Bobwhite Quail dominated (highest density) in all vegetation types except the forest where the Cardinal was a strong dominant. . . . Values [of habitat overlap] ranged from 1% (White-throated Sparrow × Savannah Sparrow) to 94% (Hermit Thrush × Ruby-crowned Kinglet)" (author's abstract).

(Abstracts prepared by James P. Griffing)



Scaled Quail: Bert Blair

Birds of Big Bend National Park and Vicinity

By Roland H. Wauer

Paintings by Howard Rollin and Anne Pulich

Big Bend National Park is the leading park for bird sightings in the National Park Service. More species have been recorded there than in any other national park. *Birds of Big Bend National Park and Vicinity* is the most up-to-date book about birds of the area and where they may be seen within and near the park. It is a "where to go and see what" book, not just a field guide to bird identity.

This comprehensive discussion of what birds occur in this area, where best to find them, and when to see them, is intended to help the birder find the particular birds he wants to see. It is also designed for the reader with a general interest in nature or with a special interest in the Big Bend area. Sections include a description of the Big Bend country, including all of the plant communities; a thorough discussion of bird finding

at all seasons; a history of ornithological study within the Big Bend area; and a complete annotated list of species.

The list of species includes a discussion of all 385 birds recorded for Big Bend National Park, as well as a discussion of species known for other parts of the Big Bend—from the Rio Grande to the Davis Mountains and Lake Balmorhea. A detailed map of the area is provided, and there are 17 photographs and 8 paintings in full color.

Roland H. Wauer, until recently Chief Park Naturalist at Big Bend National Park, has served in the National Park Service since 1957.

Published with the assistance of the Big Bend Natural History Association.

5½ x 8½ in., ca. 230 pp., 17 color photographs, 8 color paintings, 1 map, 2 line drawings. May Lexotone (soft) binding, \$4.95

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REPORT OF THE SPRING TOS MEETING AT AUSTIN

The Spring Meeting at Austin, April 12, 13, and 14, was well attended with 206 registrations. On Thursday evening, Mr. John C. Smith, non-game biologist with the Texas Parks and Wildlife Department, explained some of the research projects in non-game species. Included were the fall count of migrating Peregrine Falcons, Osprey surveys, as well as studies of Bald Eagles, Red Wolves, Alligators, etc. Most studies during the three years there has been a non-game biologist at the Parks and Wildlife Department have centered around endangered species.

On Friday evening at the barbecue dinner, Bob Armstrong, Land Commissioner of Texas, spoke to approximately 140 in attendance about the work of the General Land Office and the need for land use management on a state-wide basis. He called particular attention to the need to manage the coastal areas, flood plains, and unique ecological and archaeological sites.

At the banquet on Saturday night, Dr. George Miksch Sutton, distinguished ornithologist, delighted the audience with his talk on the "Far, Far North" complete with slides, and ended with the recitation of poetry. In spite of innumerable delays in getting served at the banquet, Dr. Sutton left all pleased that they came.

Col. L. R. Wolfe of Kerrville, author of "Check List of

the Birds of Texas," published in 1956, was made an honorary member of T.O.S. and presented, at the banquet, with a plaque in appreciation of his contribution to ornithology in the State of Texas.

The field trips yielded 127 species collectively with the Golden-cheeked Warbler and the Black-capped Vireo seen by most birders who went on the trips looking for them. Many went to the Travis Audubon Society Sanctuary which is being purchased as a preserve for the Golden-cheeked Warbler and other hill country wildlife.

There was a wildflower trip led by Elizabeth Henze, and many species were observed and photographed. The Texas Bluebonnets and the Indian Paintbrush were especially beautiful and plentiful this spring.

At the afternoon session on Saturday, L. T. "Red" and Marjorie Adams showed their two films—one on the Golden-cheeked Warbler and the other entitled "Where Should a Squirrel Live?" (rock squirrel). Both were very good.

Twenty-six Charter Members, of the original 300 Charter Members, were in attendance at this Twentieth Anniversary Meeting of the Society. The 26 included a few of the 58 in attendance at the organizational meeting of T.O.S. in Austin on Feb. 14, 1953.—Edward A. Kutac



Long-billed Curlew: Brian Chapman

OPPOSITE: Oystercatcher: Brian Chapman



BULLETIN
OF THE
**TEXAS ORNITHOLOGICAL
SOCIETY**

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Black Skimmers

Brian Chapman